PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 319368001WOO	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US03/31490	International filing date *(day/month/year)* 02 October 2003 (02.10.2003)	Priority date *(day/month/year)* 02 October 2002 (02.10.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): C12Q 1/68; G01N 27/26 and US Cl.: 435/6, 7.1, 174, 283.1, 287.2		
Applicant NEW LIGHT INDUSTRIES, LTD.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
29 April 2004 (29.04.2004)	12 January 2005 (12.01.2005)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer BJ Forman Telephone No. 571-272-1600

Form PCT/IPEA/409 (cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/31490

I. Basis of the report

1. With regard to the **elements** of the international application:*

☒ the international application as originally filed.

☒ the description:
pages 1-35 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages 36-41, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-13, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/~~fig~~ NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*
*** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/31490

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims 9-11, 22-25	YES
	Claims 1-8, 12-21	NO
Inventive Step (IS)	Claims NONE	YES
	Claims 1-25	NO
Industrial Applicability (IA)	Claims 1-25	YES
	Claims NONE	NO

2. CITATIONS AND EXPLANATIONS
Please See Continuation Sheet

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Claims 1-8 lack novelty under PCT Article 33(2) as being anticipated by Sosnowski et al (US 6,051,380).

The claims are drawn to a method for manufacturing an array of biopolymers. The method comprises forming a master-species array having a plurality of different species attached to selected regions and binding biomolecules to complementary species on the array. The method further comprises positioning a second substrate to confront the master array and transferring the biomolecules from the master array to the second substrate. Various embodiments of the method define biomolecules as including moieties e.g. binding moieties and define the transfer as via applied electric field.

Sosnowski et al disclose the claimed method at column 34 and illustrate the invention at figure 13.

Claims 9-11 and 22-23 lack an inventive step under PCT Article 33(3) as being obvious over Sosnowski et al (US 6,051,380) in view of Bentsen et al (US 6,451,191).

The claims are drawn to the methods of Claims 1-8 wherein the master species is a cylindrical drum, the method produces subsequent generations of replica arrays and the method process substrates on a roll-to-roll basis. Sosnowski teaches the substrate are those known in the art (Columns 7-9) and Bentsen teaches the cylindrical drum, subsequent generation and roll-to-roll processed substrate. It would have been obvious to one of ordinary skill in the art to apply the substrate and substrate processing of Bentsen to the substrates of Sosnowski based on the latter teaching of known substrate thereby providing a reasonable expectation of success.

Claims 12-21 lack novelty under PCT Article 33(2) as being anticipated by Nerenberg et al (US 2002/0115198).

The claims are drawn to a sensor array comprising a plurality of addressable membrane elements, a readout system detecting changes in resonance, and a signal processing system. IN further embodiments the sensor comprises probes attached to the membrane, voltage source operatively connected to the membrane and a detector for detecting frequency or resonance.

Nerenberg et al teaches the claimed sensors (¶ 15-19, 35-39, 50, 54, 97-101).

Claims 24-25 an inventive step under PCT Article 33(3) as being obvious over Nerenberg et al (US 2002/0115198).

The claims are drawn to a sensor having a plurality of array regions, each region having a nucleic acid with a common sequence and a nucleic acid hybridized to the common sequence.

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Nerenberg et al teach the sensor array wherein nucleic acid are hybridized to arrayed nucleic acids (Claim 69). While they do not specifically teach the claimed common sequence, it would have been obvious to one of ordinary skill in the art to modify the immobilized sequences of Nerenberg et al by providing common sequences based on experimental design and expected results.

Claims 1-25 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.